REMARKS

Applicant's counsel thanks the Examiner for a very careful and thorough examination of the present application. The claims have been amended and new claim 29 has been added to more clearly describe the invention. No new matter has been entered; basis for the amended claims can be found in the specification, claims and drawings as filed.

Claim 1 has been rejected under 35 USC § 102 as being allegedly anticipated by Woodward et al. ("Woodward"). This claim has now been amended to recite "said glass envelope comprising an annular mercury-insulating section located adjacent and including said inner surface thereof and extending to a radial depth within said glass envelope measured from said inner surface." This limitation was taken largely from dependent claim 4 as filed, and claim 4 has been correspondingly amended to eliminate redundancy. Additional basis for this amendment can be found in the specification at ¶ 0019. Respectfully, contrary to the Examiner's assertion at the bottom of page 2 of the Office action, Woodward nowhere discloses or remotely suggests such an arrangement. Referring to Fig. 1 of Woodward (cited by the Examiner), pictured is an outer envelope 3, a separate and discrete mercury-protective layer 16 coated onto the inner surface 15 of the outer envelope 3, and a separate phosphor coating layer 17 coated over the mercury-protective layer 16. See Woodward, col. 4 lines 46-50.

Conversely, the mercury-insulating section of the glass envelope now recited in claim 1 herein *is a portion of the glass envelope itself*. In the present invention,

the mercury-insulating section is provided in the glass envelope adjacent its inner surface. See Fig. 2 herein which shows the glass envelope 12 having a total thickness 5 between the inner and outer surfaces thereof, and the mercury-insulating section 13 *provided in the glass envelope* adjacent the inner surface 4. Referring to the specification, this mercury-insulating section can be provided, e.g., via ion exchange of sodium ions originally present in the glass envelope with potassium ions by dipping the envelope into a potassium melt. [See specification, esp. ¶ 0020-0021]. This physical arrangement is **completely different** from, and is neither taught nor remotely suggested by, Woodward which teaches a separate and discrete mercury-protective layer 16 that is *separately coated* onto the inner surface of the glass envelope. Accordingly, the rejection of claim 1 has been overcome, and claim 1 should now be allowable.

Claims 7, 9-11, and 19 have also been rejected under Section 102 over Woodward. The rejections of these claims are respectfully traversed. Regarding claim 7, the Examiner states that Woodward discloses at col. 5 lines 9-43,"the mercury-insulating section is a compressed section of densely packed species." The cited passage in Woodward describes an electrically conductive *separate tin oxide layer* coated on the inner surface of the glass envelope as a starting aid to overcome ignition problems typically associated with krypton in the fill gas. This separate tin oxide layer is a separate and discrete starting aid layer, and *is not* provided as part of the glass, or in the glass envelope. In claim 7, the "compressional section comprising densely packed species" is provided *in the glass*

envelope itself, and such a construction is not disclosed in Woodward.

Claims 9, 10 and 19 have been rejected, referring to Woodward col. 5 lines 40-43, on the ground that the cited passage teaches the densely packed species being selected from the groups consisting of potassium ions and atoms, and of calcium ions and atoms respectively. First regarding claims 9 and 19, the cited passage makes no reference to any potassium species of any kind, and Woodward nowhere discloses or suggest a potassium-containing mercury barrier. Second, regarding claim 10, the cited passage merely discloses a certain halophosphor that can be used in the phosphor layer; phosphors are responsible for absorbing UV radiation from the excited mercury discharge and converting the absorbed UV into visible light which exits the lamp. The particular phosphor disclosed at the cited passage in Woodward is a cool white phosphor, Ca_5(F,Cl)(PO4)3:Sb:Mn. While this phosphor does contain calcium (Ca_5), *it is not* a calcium atom/ion present as a "densely packed species" in the mercury-insulating section of the glass envelope as recited in claim 10. Rather, it is a phosphor present in the phosphor layer which converts UV radiation to visible light.

Claim 11 recites the mercury-insulating section of the glass envelope is "substantially electrically non-conductive." As described above, the glass envelope in Woodward has no mercury-insulating section so there can be no teaching to provide such a section that is electrically non-conductive.

For the foregoing reasons, it is believed the rejections of dependent claims 7, 9-11 and 19 have now been overcome, and that these claims are now in condition

for allowance.

Claim 22 has also been rejected under Section 102 over Woodward. This claim has now been rewritten in independent form. Claim 22 recites a "mercury barrier layer disposed adjacent the inner surface [of the glass envelope]..., said mercury barrier layer being a compressional layer of densely packed non-activated and *substantially electrically non-conductive* tin oxide." Col. 4 lines 45-57 of Woodward (cited by the Examiner) describes the mercury-protective barrier layer 16 being disposed over the inner surface 15 of the envelope 3, but is otherwise completely silent, and provides no suggestion or motivation to provide a barrier layer having the properties or composition described in claim 22. At col. 5 lines 17-25, Woodward does disclose providing a tin oxide layer on the inner surface of the envelope. But this layer *is electrically conductive* (see col. 5 lines 20-25) because it is provided as a starting aid to counteract the presence of krypton which inhibits lamp ignition. Conversely, the tin oxide layer of claim 22 is a compressional layer packed densely enough to act as a mercury barrier, but not densely enough to be electrically conductive (see also specification at ¶ 0020 for more detailed explanation). Therefore, because the tin oxide layer of claim 22 is not *electrically conductive*, the rejection of claim 22 is overcome.

Claim 24 has also been rejected under Section 102 over Woodward. This claim has also been rewritten in independent form. The Examiner states in the Office action, page 4, that "Woodward discloses (column 5, lines 40-43) the phosphor layer comprising a metal ion species therein as a mercury barrier."

Respectfully, as already described the cited passage merely discloses *a halophosphor* for use in the phosphor layer to produce cool white visible light. Woodward does not disclose providing a mercury barrier of any kind, particularly in the form of metal ion species, in the phosphor layer "to provide a mercury barrier therein" as now recited in claim 24. Accordingly, claim 24 is now believed to be allowable over the cited references.

Claims 25 and 26 have also been rejected under Section 102 over Woodward. Respectfully, the rejection of claim 25 is overcome for the same reasons described above with respect to claims 9 and 19. Regarding claim 26, contrary to the Examiner's assertion Woodward does not disclose the use of a potassium salt (particularly potassium chloride) as a metal ion species useful as a mercury barrier layer material; nor does Woodward ever mention potassium chloride for any purpose. Accordingly, the rejections of these claims have been overcome.

In view of all of the foregoing, it is respectfully submitted that the rejections of claims 1, 7, 9-11, 19, 22, and 24-26 have all been overcome, and that these claims are now in condition for allowance. All remaining claims are dependent claims and are thus also believed to be allowable as such.

If any fees are required by this communication not covered by an enclosed check, please charge any such fees to our Deposit Account No. 16-0820, Order No. 33916.

Respectfully submitted,

PEARNE & GORDON LLP

By: _____
Steven J. Solomon, Reg. No. 48719

526 Superior Avenue, East
Suite 1200
Cleveland, Ohio 44114-1484
(216) 579-1700

Date: August 18, 2003